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t-

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Memoir of. 1995.

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ROUSCULP, JOHN A.

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ROUSE, HUNTER.

Flume traction. 1303.

A theory of silt transportation. 1767.

ROWE, R. ROBINSON.

Cost of energy generation. 1196.

"The Three-Point Problem in a Co-Ordinated Field." 1314.

RUDOLFS, WILLEM.

Multiple-stage sewage sludge digestion. 122.

RUDOLPH, WILLIAM E.

Cost of energy generation. 1164.

RUGE, ARTHUR C.

"Mechanical Structural Analysis by the Moment Indicator." 1659.

RUTTER, EDWARD J.

"Flood Routing." 275.

RYDER, CHARLES E.

"Stream Pollution in the Ohio River Basin: A Symposium: Low-Flow Regulation by Pymatuning Reservoir." 832.

SACKETT, R. L.

Economics of energy generation. 1023.

SALTZMAN, BENJAMIN.

Re-zoning urban areas. 933.

SAMUELS, M. M.

Economics of energy generation. 1026.

SANGER, F. J.

Design of rock-fill dams. 65.

Mechanical analyses of soils. 177.

SAWTELL, HARRY EDGAR.

Memoir of. 1998.

SAWYER, DONALD H.

"Frontiers of Engineering." Address at the Annual Convention, San Francisco, California, July 26, 1939. 1815.

SCANLIN, WILLIAM ROBERT.

Memoir of. 2000.

SCHAEFER, EVERETT B.

"Aerodynamics of the Perisphere and Trylon at World's Fair." 1449.

SCHARFF, MAURICE R.

"Cost of Energy Generation: Second Symposium on Power Costs: Depreciation and Obsolescence." 1127.

SCHMIDT, E. L.

"Increasing the Traffic Capacity and Safety of Thoroughfares: A Symposium: Economics of Alignment, Grade, and Width." 485.

SCHMIDT, ERNST O.

"Mechanical Structural Analysis by the Moment Indicator." 1659.

SCHOFIELD, H. Z.

Highway road-beds. 1403.

SCHROEPFER, GEORGE J.

" Economics of Sewage Treatment." 1210.

SCHURIG, ERNEST GEORGE.

Memoir of. 2001.

SCOTT, G. R.

Stream pollution. 898.

SEITZ, BRADLEY G.

Public works. 707.

SHAPIRO, FREDERICK.

Flexure factors for continuous structures. 531.

SHEARER, WILLIAM.

Memoir of. 2050.

SHULITS, SAMUEL.

A theory of silt transportation. 1760.

SILLIMAN, JOSEPH WARREN.

Memoir of. 2051.

SIMPSON, HAWLEY S.

Traffic problems. 511.

SINKS, FRANK FORREST.

Memoir of, 2002.

SMITH, G. E. P.

"Final Report of the Committee of the Irrigation Division on Interstate Water Rights: Interstate Water Problems." 1822.

SMITH, LEROY C.

"Motor Transportation—A Forward View: A Symposium: Trunk-Line Highways in Metropolitan Areas." 1586.

SMITH, WALDO E.

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Flood routing. 307.

SMITH, WILSON FITCH.

Memoir of. 2004.

SNYDER, FRANKLIN F.

"Flood Routing." 275.

SPANGLER, M. G.

Lateral earth and concrete pressures. 1710.

SPOFFORD, CHARLES M.

"Reconstruction of a Pier in Boston, Massachusetts, Harbor." 1625.

SPORN, PHILIP.

Cost of energy generation. 1186.

"Economic Aspects of Energy Generation: A Symposium: Cost of Generation of Electric Energy." 984.

SPRAGUE, BEN C.

Economics of energy generation. 1019.

STEELE, I. C.

Design of rock-fill dams. 53.

STEVENS, J. C.

- "Final Report of the Committee of the Irrigation Division on Interstate Water Rights: Interstate Water Problems." 1822,
- "Siphons as Water-Level Regulators." 1787.

STEVENSON, W. L.

"Stream Pollution in the Ohio River Basin: A Symposium: Sanitation Problems Incidental to Floods." 844.

STEWART, RALPH W.

Lateral earth and concrete pressures. 1724.

"Relative Flexure Factors for Analyzing Continuous Structures." 521.

STOWITTS, GEORGE PUTNAM.

Memoir of. 2008.

STRAUB, LORENZ G.

Flume traction. 1298.

STREETER, HAROLD W.

"Stream Pollution in the Ohio River Basin: A Symposium: Surveys for Stream Pollution Control." 815.

STUART, ALFRED ALLEN.

Public works. 708.

SUDLER. EMORY.

Memoir of. 2009.

TAYLOR, E. H.

Geometric distortion in hydraulic models. 1515.

TERZAGHI, CHARLES.

Lateral earth and concrete pressures. 1706.

THÉARD, ALFRED FRANCIS.

Memoir of, 2011.

THOMAS, HAROLD A.

Water-hammer pressures. 378.

THOMAS, R. L.

Cost of energy generation. 1181.

THRESHER, B. ALDEN.

"Economic Aspects of Energy Generation: A Symposium: Electric Power in Economic Perspective." 1001.

TIPTON, R. J.

"Final Report of the Committee of the Irrigation Division on Interstate Water Rights: Interstate Water Problems." 1822.

TISDALE, E. S.

"Stream Pollution in the Ohio River Basin: A Symposium: Progress in Pollution Control in the Ohio River Basin." 852.

TOWNSEND, GEORGE E.

Flood routing. 304.

TURNBULL, W. J.

Highway road-beds. 1411.

TUTEWILER, HARVEY ALFORD.

Memoir of. 2052.

TUTWILER, THOMAS HENRY.

Memoir of. 2013.

UHL, W. F.

"Cost of Energy Generation: Second Symposium on Power Costs: Recapitulation." 1139.

UMPHREY, D. M.

Water-level regulators. 1803.

VAN DUZER, R. M., JR.

"Cost of Energy Generation: Second Symposium on Power Costs: Heat-Generated Energy." 1060.

VAUGHN, R. L.

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VELZ, C. J.

"Deoxygenation and Reoxygenation." 560.

VETTER, C. P.

"Design of Pile Foundations." 758.

VEY, ARNOLD H.

"Increasing the Traffic Capacity and Safety of Thoroughfares: A Symposium: Improvements to Reduce Traffic Accidents." 474.

VOGEL HERBERT D.

Geometric distortion in hydraulic models. 1517.

von BERGEN, HAROLD E.

"Earthquake Stresses in an Arch Dam." 133.

WEINIG, A. J.

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WESSMAN, HAROLD E.

"Preliminary Design of Suspension Bridges." 579.

WESTON, ROBERT SPURR.

Stream pollution. 883.

WHITAKER, CHARLES COURTLANDT.

Memoir of. 2015.

WHITE, LAZARUS.

"Lateral Earth and Concrete Pressures." 1685.

WHITE, MERIT P.

Natural periods of cantilever beams. 433.

WHITMAN, EZRA B.

"Cost of Energy Generation: Second Symposium on Power Costs: Combined Energy Generation." 1115.

WHITMORE, GEORGE D.

The three-point problem. 1326.

WHITSIT, LYLE A.

Energy mass diagrams. 1656.

WIERSEMA, HARRY A.

Public works. 727.

WILBUR, JOHN B.

Flexure factors for continuous structures. 539.

The moment indicator. 1672.

WILGUS, WILLIAM I.

"Engineering Economics and Public Works: A Symposium: An Appeal to Reason." 690.

WILLIAMS, FRIEND PITTS.

Memoir of. 2016.

WILLIAMS, SIDNEY J.

Traffic problems. 504.

WILSON, CHARLES BEATTY.

Memoir of. 2017.

WILSON, GEORGE LEVERETT.

Memoir of, 2018.

WILSON, JOHN H.

Design of rock-fill dams. 47.

WISELY, W. H.

Stream pollution. 892.

WITMER, JOSEPH FRANKLIN.

Memoir of. 2019.

WOLFE, FRANK CHARLES.

Memoir of. 2021.

WOLMAN, ABEL.

"Final Report of the Committee of the Irrigation Division on Interstate Water Rights: Interstate Water Problems." 1822.

"Stream Pollution in the Ohio River Basin: A Symposium: What Can Be Done About Stream Pollution?" 874.

WOODRUFF, GLENN B.

Design of suspension bridges. 614.

YOUNG, HUGH E.

"Practical Methods of Re-Zoning Urban Areas." 904.

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